

WHAT IS CLAIMED IS:

1. A switch for switching packets, each packet having a length, comprising:

a port card which receives packets from and sends packets to a network; and

fabrics connected to the port card which switch the packets, each fabric having a memory mechanism, each fabric having a mechanism for determining the length of each packet received by the fabric and placing a length indicator with the packet so when the packet is stored in the memory mechanism, the determining mechanism can identify from the length indicator how long the packet is and where the packet ends in the memory mechanism.

2. A switch as described in Claim 1 wherein the determining mechanism includes an aggregator which receives packet fragments from the port card, determines the packet length and appends packet length information to the beginning of the packet in the length indicator.

3. A switch as described in Claim 2 wherein the memory mechanism includes a memory controller, the aggregator sending the packet with the packet length information to the memory controller which stores the packet with the packet length information.

4. A switch as described in Claim 3 wherein the memory controller has a memory which has a wide cache buffer structure in which multiple packets are put into one word.

5. A switch as described in Claim 4 wherein the fabric includes a separator which reads the packets from the memory

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controller and extracts the packet length information from each packet to determine when each packet ends, and sends fragments of the packet to the port card.

6. A switch as described in Claim 5 wherein the separator removes the packet length information from each packet before sending any fragments of each packet to an unstriper of the port card.

7. A method for switching packets having a length comprising the steps of:

receiving a packet at a port card of a switch;

sending fragments of the packet to fabrics of the switch;

receiving the fragments of the packet at the fabrics of the switch;

measuring the length of the packet at each fabric from the fragments of the packet received at each fabric;

appending a length indicator to the packet;

storing the packet with the length indicator in a memory mechanism of the fabric;

reading the packet from the memory mechanism; and

determining where the packet ends from the length indicator of the packet.

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9. A method as described in Claim 8 wherein the measuring step includes the step of measuring the length of the packet with the aggregator.

11. A method as described in Claim 10 wherein the storing step includes the step of storing the packet with the length indicator in a memory controller of the memory mechanism.

12. A method as described in Claim 11 wherein the reading step includes the step of reading the packet from the memory controller with a separator of the fabric.

13. A method as described in Claim 12 wherein the determining step includes the step of determining where a packet ends from the length indicator with the separator.

14. A method as described and Claim 13 including after the determining step, there is the step of removing the packet length information from the separator.

15. A method as described in Claim 14 including after the removing step, there is the step of sending fragments of the packets from the separator to the port card.

16. A method as described in Claim 15 wherein the sending fragments step includes the step of sending fragments of the packet to the port card in a same logical time with corresponding fragments from other fabrics to the port card.

17. A method as described in Claim 16 wherein the storing step includes the step of storing the fragments of the packet in a memory of the memory controller which has a wide cache buffer structure in which multiple packets are put into one word.

18. A method as described in Claim 17 including after the reading step, there is the step of extracting the packet length information from the packet with a separator.

19. A method as described in Claim 18 wherein the receiving step includes the step of receiving the fragments of the packet from the fabrics with an unstriper of the port card.

20. A method as described in Claim 19 wherein the sending fragments to the fabric step includes the step of sending with a striper of the port card to the aggregator of each fabric the fragments of the packet.

21. A method as described in Claim 20 wherein the step of sending fragments to the port card includes the step of sending fragments from the separator to an unstriper of the port card.

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